CLAIM AMENDMENTS

1-129. (Cancelled)

130. (Currently Amended) An automatic focusing method for an optical system, comprising:

performing an initial coarse focus action along a focal axis at a scan position corresponding to a point on a surface of a slide; and

respectively performing a plurality of subsequent fine focus actions along a plurality of focal axes at a plurality of scan positions corresponding to different points on the slide surface, wherein the performance of at least one of the fine focus actions comprises obtaining images of the slide, each of which has a two-dimensional array of pixels, at a plurality of coordinates within a predetermined range along the respective focal axis, and selecting one of the plurality of coordinates as a fine in-focus coordinate based on an examination of the pixel arrays of the images, wherein the slide comprises at least three fiducial points, and the method further comprises determining positions of the at least three fiducial points, and determining a scan axis slope, index axis slope, and focus intersect of a global focal plane based on the positions of the at least three fiducial points, wherein the performance of the at least one of the fine focus actions comprises estimating an initial coordinate along the respective focal axis as a function of the global focal plane.

131. (Previously Presented) The method of claim 130, wherein the coordinates are evenly distributed within the predetermined range.

132. (Cancelled).

133. (Previously Presented) The method of claim 130, wherein the performance of the coarse focus action comprises determining a coarse in-focus coordinate along the focal axis.

134. (Previously Presented) The method of claim 133, wherein the performance of the at least one of the fine focus actions is based on the coarse in-focus coordinate.

135. (Cancelled).

136. (Previously Presented) The method of claim 130, wherein the performance of the coarse focus action comprises repeatedly obtaining an image of the slide at different coordinates along the focal axis until a coarse in-focus coordinate is determined.

137. (Currently Amended) The method of claim ~~135~~ 130, wherein the performance of the at least one of the fine focus actions comprises obtaining images of the slide at predetermined coordinates relative to the estimated initial coordinate along the respective focal axis.

138. (Cancelled).

139. (Previously Presented) The method of claim 130, wherein the performance of at least one of the coarse focus action and each fine focus action comprises:

obtaining images of the slide at a plurality of coordinates along the focal axis;

determining a plurality of focus scores for the respective coordinates; and

selecting one of the coordinates as an in-focus coordinate based on the focus scores.

140. (Previously Presented) The method of claim 139, wherein the coordinate having a maximum focus score is the coordinate selected as the in-focus coordinate.

141. (Previously Presented) The method of claim 130, wherein the slide carries a biological specimen.

142. (Currently Amended) The method of claim 130, wherein the coarse focus action and fine focus actions are performed during a single image scan.

143. (Previously Presented) The method of claim 130, wherein the performance of one or both of the coarse focus action and fine focus actions comprises moving an element of the optical system relative to the slide surface to coordinates along the respective focal axes.

144. (Previously Presented) The method of claim 130, wherein the performance of the fine focus actions comprises moving an element of the optical system relative to the slide along a scan axis to the respective scan positions.

145-168. (Cancelled).

169. (Previously Presented) The method of claim 130, wherein each of the images has a 640x480 pixel array size.

170. (Previously Presented) The method of claim 130, wherein the examination of each of the pixel arrays comprises comparing pixels to each other.

171. (Previously Presented) The method of claim 170, wherein the pixel comparison comprises comparing gray scale values of the pixels.

172. (Previously Presented) The method of claim 171, wherein the gray scale value comparison comprises comparing gray scale values between pairs of pixels separated by a fixed number of pixels.

173. (Previously Presented) The method of claim 130, wherein the examination of each of the pixel arrays comprises determining a focus score, and wherein the coordinate corresponding to the pixel array having the highest focus score is selected as the in-focus coordinate.

174. (Previously Presented) The method of claim 173, wherein the focus score for each of the pixel arrays is determined in accordance with the equation:

$f(z) = \sum_j \sum_i (G_i(z) - G_{i+n}(z))^2$, where *i* is an index ranging over all imaging points, in order, along a scan line *j*, *n* is an integer, *z* is a position along the focal axis, G_i is the transmission gray level between pairs of points separated by *n* pixels, and *f(z)* is the focus score.

175-176. (Cancelled).

177. (Previously Presented) The method of claim 130, wherein the at least one of the fine focus actions comprises the plurality of fine focus actions.

178. (Previously Presented) The method of claim 136, wherein the performance of the coarse focus action comprises stepping the imaging between the different coordinates along the focal axis, wherein a step size of the imaging is gradually reduced, and wherein the coarse in-focus coordinate is determined at the smallest step size.

179. (New) A review station, comprising:

a motorized stage coupled to the optical instrument for receiving a specimen;

an optical instrument having an optical path, the motorized stage configured for moving the specimen within the optical path, the optical instrument configured for performing an initial coarse focus action along a focal axis at the scan position corresponding to a point on the specimen, and respectively performing a plurality of subsequent fine focus actions along a plurality of focal axes at a plurality of scan positions corresponding to different points on the specimen;

a camera configured for obtaining images of the specimen along the optical path at a plurality of coordinates within a predetermined range along the respective focal axis during the performance of at least one of the fine focus actions, each of the images having a two-dimensional array of pixels; and

a processor configured for selecting one of the plurality of coordinates as a fine in-focus coordinate for at least one of the fine focus action based on an examination of the pixel arrays of the images, wherein the specimen comprises at least three fiducial points, and the processor is further configured for determining positions of the at least three fiducial points, and determining a scan axis slope, index axis slope, and focus intersect of a global focal plane based on the positions of the at least three fiducial points, wherein processor is further configured for estimating an initial coordinate along the respective focal axis as a function of the global focal plane for the at least one fine focus action.

180. (New) The review station of claim 179, wherein the coordinates are evenly distributed within the predetermined range.

181. (New) The review station of claim 179, wherein the performance of the coarse focus action comprises determining a coarse in-focus coordinate along the focal axis.

182. (New) The review station of claim 179, wherein the performance of the at least one of the fine focus actions is based on the coarse in-focus coordinate.

183. (New) The review station of claim 179, wherein the camera is configured for repeatedly obtaining an image of the specimen at different coordinates along the focal axis until a coarse in-focus coordinate is determined during the performance of the coarse focus action.

184. (New) The review station of claim 179, wherein the camera is configured for obtaining images of the specimen at predetermined coordinates relative to the estimated initial coordinate along the respective focal axis when the at least one of the fine focus actions is performed.

185. (New) The review station claim 179, wherein, during the performance of at least one of the coarse focus action and each fine focus action, the camera is configured for obtaining images of the specimen at a plurality of coordinates along the focal axis, and the processor is configured for determining a plurality of focus scores for the respective coordinates, and selecting one of the coordinates as an in-focus coordinate based on the focus scores.

186. (New) The review station of claim 185, wherein the coordinate having a maximum focus score is the coordinate selected as the in-focus coordinate.

187. (New) The review station of claim 179, wherein the specimen is carried by a slide.

188. (New) The review station of claim 179, wherein the optical instrument is configured for performing the coarse focus action and fine focus actions during a single image scan.

189. (New) The review station of claim 179, wherein each of the images has a 640x480 pixel array size.

190. (New) The review station of claim 179, wherein the examination of each of the pixel arrays comprises comparing pixels to each other.

191. (New) The review station of claim 190, wherein the pixel comparison comprises comparing gray scale values of the pixels.

192. (New) The review station of claim 191, wherein the gray scale value comparison comprises comparing gray scale values between pairs of pixels separated by a fixed number of pixels.

193. (New) The review station of claim 176, wherein the examination of each of the pixel arrays comprises determining a focus score, and wherein the coordinate corresponding to the pixel array having the highest focus score is selected as the in-focus coordinate.

194. (New) The review station of claim 193, wherein the focus score for each of the pixel arrays is determined in accordance with the equation: $f(z)=\sum_j\sum_i(G_i(z)-G_{i+n}(z))^2$, where *i* is an index ranging over all imaging points, in order, along a scan line *j*, *n* is an integer, *z* is a position along the focal axis, G_i is the transmission gray level between pairs of points separated by *n* pixels, and *f(z)* is the focus score.

195. (New) The review station of claim 176, wherein the at least one of the fine focus actions comprises the plurality of fine focus actions.

196. (New) The review station of claim 183, wherein the camera is configured for stepping the imaging between the different coordinates along the focal axis during the performance of the coarse focus action, wherein a step size of the imaging is gradually reduced, and wherein the processor is configured for determining the coarse in-focus coordinate at the smallest step size.